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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,944	04/19/2005	John Nicholas Argyropoulos	62848A	4506
109	7590	12/13/2006		
THE DOW CHEMICAL COMPANY INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967 MIDLAND, MI 48641-1967				
			EXAMINER NILAND, PATRICK DENNIS	
			ART UNIT 1714	PAPER NUMBER

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/531,944

Applicant(s)

ARGYROPOULOS ET AL.

Examiner

Patrick D. Niland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All. b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____   | 6) <input type="checkbox"/> Other: _____                          |

1. The amendment of 9/18/06 has been entered. Claims 1, 3-11, and 13-19 are pending.

2. Claims 1, 3-11, 13-15, and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The instant claims recite “consisting” initially followed by “wherein the polyisocyanate consists of” followed by “with the proviso said isomeric mixture comprises”. It is unclear how this last use of open language is intended to modify the previous recitations of closed language and what the effect to the final claim scope is.

B. The instant claims require “a polyurethane dispersion consisting of”. “Consisting” is closed language. The list of components following “consisting” is closed to other components. No continuous phase is recited following “consisting”. It is therefore unclear what is intended by the claims, what the continuous phase is, and, if “consisting” is intended as it is claimed, how the composition is to be considered a “dispersion”. Claim 3 is noted. However, this further clouds the scope of what is intended by “consisting” essentially and uses “consisting” inconsistently with its legal definition. It is unclear, for example, if the extra isocyanates of claim 15 are those which are already listed in claim 1 or include other, non-claimed isocyanates due to the applicant’s use of “consisting” in the instant manner verses the legal definition of the open and closed terminology used by the applicant. Similar issues occur in claims 18-19.

3. Claims 3-4, 9, 15, and 18-19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

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dependent form, or rewrite the claim(s) in independent form. The claim from which these claims depend recites "consisting" initially and does not recite the ingredients of these claims. Addition of these ingredients is contradictory to "consisting" and broadens the scope of "consisting" which is contradictory to the instant CFR requirement that dependent claims further limit the claims from which they depend.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-8, 10-14, 16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat. No. 6569533 Uchida et al..

See the abstract; column 2, lines 49-67; column 3, lines 18-67; column 4, lines 1-67, particularly 6-33 and 48-67; column 5, lines 1-67, particularly 35-67; column 6, lines 1-67; column 7, lines 7-15; column 10, lines 20-66; column 13, lines 40-67; column 14, lines 1-49 and 60-67; column 15, lines 1-20; column 16, lines 1-61; and the remainder of the document clearly disclose the above claimed inventions. Hydrogenated XDI is expected to be a technical mixture

of the isomers the chemistry inherent to this reaction produce via the well known organic chemistry theories. There is no probative evidence provided to the contrary. The PTO has no facilities to make experimental determinations. The burden for doing so has been placed on the applicant by the courts. The claimed hydrogenated XDI is therefore expected to give the mixtures of the instant claim 1 necessarily inherently. The stabilities of the instant claim 14 are necessarily inherent as the use of the claimed aliphatic hydrogenated XDI will give a more light stable polyurethane than one containing aromatic isocyanate as is well known and necessarily inherent to the patentee's claimed polyurethanes. The diols of the instant claims are disclosed at column 4, lines 5-32, particularly 20-21 and 25-46. The molecular weights of column 4, lines 30-32 will fall within the scope of the weight average molecular weights of the instant claims 5 and 16 based on the definition of average molecular weight and polydispersity in polymer chemistry. "Diol" has an average functionality of 2 which is within the claimed range of claims 5 and 16. The examiner points out that the polyurethane of the patentee may be in the form of an aqueous dispersion or solution (column 5, lines 33-36). The skilled artisan in this art appreciates that polyurethanes form "solutions" which are balled up molecules of the long polyurethane chains. These "solutions" are "molecular dispersions" as understood in the art. Their particle size is necessarily less than 5 microns. In order for a dispersion to remain stable, its particles are typically of particle sizes less than 5 microns necessarily, as is well known and discussed throughout the entirety of the art in US Class 524 subclass 591 which is an aqueous polyurethane subclass. The burden is therefore on the patentee to show that the dispersions of the patentee do not inherently and necessarily possess the instantly claimed particle size in the instantly claimed broad range, particularly where the amounts of the hydrophilic compound of column 6, lines 14-

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52 et seq. are used particularly at the molecular weights of column 8, lines 10-23. These compounds fall within the scope of the instant claim 11. Column 5, lines 40-59 reads on the instant claim 10. Tertiary amines of the instant claim 18 are used by the patentee at column 6, lines 53-67, particularly 63 and 65. This rejection is therefore maintained.

7. Claims 1, 3-11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 6569533 Uchida et al..

See the abstract; column 2, lines 49-67; column 3, lines 18-67; column 4, lines 1-67, particularly 6-33 and 48-67; column 5, lines 1-67, particularly 35-67; column 6, lines 1-67; column 7, lines 7-15; column 10, lines 20-66; column 13, lines 40-67; column 14, lines 1-49 and 60-67; column 15, lines 1-20; column 16, lines 1-61; and the remainder of the document clearly disclose the above claimed inventions. Hydrogenated XDI is expected to be a technical mixture of the isomers the chemistry inherent to this reaction produce via the well known organic chemistry theories. There is no probative evidence provided to the contrary. The PTO has no facilities to make experimental determinations. The burden for doing so has been placed on the applicant by the courts. The claimed hydrogenated XDI is therefore expected to give the mixtures of the instant claim 1 necessarily inherently. The stabilities of the instant claim 14 are necessarily inherent as the use of the claimed aliphatic hydrogenated XDI will give a more light stable polyurethane than one containing aromatic isocyanate as is well known and necessarily inherent to the patentee's claimed polyurethanes. The diols of the instant claims are disclosed at column 4, lines 5-32, particularly 20-21 and 25-46. The molecular weights of column 4, lines 30-32 will fall within the scope of the weight average molecular weights of the instant claims 5 and 16 based on the definition of average molecular weight and polydispersity in polymer

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chemistry. "Diol" has an average functionality of 2 which is within the claimed range of claims 5 and 16. The examiner points out that the polyurethane of the patentee may be in the form of an aqueous dispersion or solution (column 5, lines 33-36). The skilled artisan in this art appreciates that polyurethanes form "solutions" which are balled up molecules of the long polyurethane chains. These "solutions" are "molecular dispersions" as understood in the art. Their particle size is necessarily less than 5 microns. In order for a dispersion to remain stable, its particles are typically of particle sizes less than 5 microns necessarily, as is well known and discussed throughout the entirety of the art in US Class 524 subclass 591 which is an aqueous polyurethane subclass. The burden is therefore on the patentee to show that the dispersions of the patentee do not inherently and necessarily possess the instantly claimed particle size in the instantly claimed broad range, particularly where the amounts of the hydrophilic compound of column 6, lines 14-52 et seq. are used particularly at the molecular weights of column 8, lines 10-23. These compounds fall within the scope of the instant claim 11. Column 5, lines 40-59 reads on the instant claim 10. Tertiary amines of the instant claim 18 are used by the patentee at column 6, lines 53-67, particularly 63 and 65.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed mixtures of isocyanates because mixtures, though not the instantly claimed amounts thereof, are encompassed by the patentee at column 4, lines 1-2, it is within the ability of the ordinary skilled artisan to determine the mixtures and amounts of each isocyanate needed to obtain desired properties as evidenced by the absence of guidance on this issue by the patentee, and the ordinary skilled artisan expects the combinations of properties contributed by each isocyanate in proportion to the amounts thereof. Furthermore, the skilled

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artisan would use excess of the preferred isocyanates, including hydrogenated XDI, since its properties are obviously desired most. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed solids content of claim 9 because the patentee encompasses aqueous solutions, which are infinitely dilutable by definition, and dispersions and thus encompasses a large range of feasible solids contents and it is within the ability of the ordinary skilled artisan to determine the solids content desired based on factors such as desired viscosity and desired coating thickness, and the patentee encompasses all possible solids contents by its silence regarding this feature. The only mention of solids content is in some of the examples. It is not seen that going a mere 5% above the exemplified amounts would make a material difference, particularly where low molecular weight very hydrophilic but dispersible rather than soluble, as soluble polyurethanes would be expected to gel, polyurethane moieties were employed. It would only have been expected to slightly increase viscosity and resulting film thickness as would be appreciated by the ordinary skilled artisan. There are no unexpected results shown in a manner commensurate in scope with the instant claims and the cited prior art in regard to the solids content. This rejection is therefore maintained.

8. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patrick D. Niland  
Primary Examiner  
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